Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A moving picture encoding method capable of using a reference frame number in multi-frame motion prediction and variable-length code reference frame information corresponding to the number, said method comprising the steps of:

acquiring a reference frequency of the reference frame;

with the reference frequency, acquiring reference frame identification information so that a ratio of a reference frame index code occupying a bit stream is reduced; and

multiplexing the reference frame identification information together with encoded moving picture data,

wherein the step of acquiring the reference frequency comprises a step of calculating a frame similarity to estimate the reference frequency of the reference frame.

2. (Currently Amended) The moving picture encoding method according to Claim 1, wherein the step of acquiring the reference frame identification information comprises a step of assigning, based on the reference frequency, a relatively shorter code to the reference frame index code of a reference frame referred with relatively high frequency and assigning a relatively longer code to the reference frame index code of a reference frame referred with relatively low frequency, thereby acquiring the reference frame identification information frequency comprises a step of calculating the reference frequency.

3. (Currently Amended) The moving picture encoding method according to Claim 1 or 2, wherein the step of estimating the reference frequency comprises the steps of: extracting an orthogonal transformation coefficient from a picture frame to calculate the frame similarity; and estimating the reference frequency from the frame similarity acquiring the reference frame identification information comprises a step of assigning a relatively shorter code to the reference frame index code of a reference frame referred with relatively high frequency and assigning a relatively longer code to the reference frame index code of a reference frame referred with relatively low frequency, thereby acquiring the reference frame identification information.

4.   (Currently Amended) The moving picture encoding method according to Claim 1 [[2 or 3]], further comprising the steps of:

detecting a reference frame of which the frame similarity is excessively low; and

regarding the detected reference frame as a non-reference frame ~~wherein the step of calculating the reference frequency comprises a step of acquiring a reference frame for each block from a prediction error and a weighted sum of motion vectors and of calculating a reference frequency of the acquired reference frame~~.

5.   (Currently Amended) The moving picture encoding method according to Claim [[2]] 1, wherein the reference frequency is estimated ~~calculated~~ as to all of the reference frame.

6.   (Currently Amended) The moving picture encoding method according to Claim [[2]] 1, wherein the reference frequency is estimated ~~calculated~~ as to a part of the reference frame.

7.   (Currently Amended) A [[The]] moving picture encoding ~~method according to Claim 1, wherein the step of acquiring the reference frequency comprises a step of calculating a frame similarity and of then estimating the reference frequency of the reference frame~~ apparatus capable of using a reference frame number in multi-frame motion prediction and variable-length code reference frame information corresponding to the number, said apparatus comprising:

reference frame identification information calculation means for calculating a frame similarity to estimate a reference frequency of the reference frame and for acquiring, with the reference frequency, reference frame identification information so that a ratio of a reference frame index code occupying a bit stream is reduced; and

multiplexing means for multiplexing the reference frame identification information together with encoded moving picture data. A moving picture encoding apparatus capable of using a reference frame number in multi-frame motion prediction and variable-length code reference frame information corresponding to the number, said apparatus comprising:

reference frame identification information calculation means for calculating a frame similarity to estimate a reference frequency of the reference frame and for, with the reference

frequency, acquiring reference frame identification information so that a ratio of a reference frame index code occupying a bit stream is reduced; and

multiplexing means for multiplexing the reference frame identification nformation together with encoded moving picture data.

8. (Currently Amended) The moving picture encoding ~~method~~ apparatus according to Claim 7, wherein the ~~step of acquiring the~~ reference frame identification calculation means comprises means for, based on the reference frequency, assigning a relatively shorter code to reference frame index code of a reference frame referred with relatively high frequency and assigning a relatively longer code to the reference frame index code of a reference frame referred with relatively low frequency, thereby acquiring the reference frame identification information ~~comprises a step of assigning, based on the reference frequency, a relatively shorter code to the reference frame index code of a reference fram referred with relatively high frequency and assigning a relatively longer code to the reference frame index code of a reference frame referred with relatively low frequency, thereby acquiring the reference frame identification information~~.

9. (Currently Amended) The moving picture encoding apparatus according to Claim 7[[or 8]], wherein in estimation of the reference frequency, an orthogonal transformation coefficient is extracted from a picture frame to calculate a frame similarity, and the reference frequency is then estimated from the frame similarity ~~the step of estimating the reference frequency comprises the steps of: extracting an orthogonal transformation coefficient from a picture frame to calculate the frame similarity; and estimating the reference frequency from the frame similarity~~.

10. (Currently Amended) The moving picture encoding ~~method~~ apparatus according to Claim 7, wherein in estimation of the reference frequency, calculation is performed while a reference frame of which the frame similarity is excessively low is regarded as a non-reference frame ~~further comprising the steps of:~~

~~detecting a reference frame of which the frame similarity is excessively low; and~~

~~regarding the detected reference frame as a non-reference frame~~.

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11.   (Currently Amended) The moving picture encoding apparatus ~~method~~ according to Claim 7, wherein in estimation of the reference frequency, the reference frequency is estimated as to all of the reference frame.

12.   (Currently Amended) The moving picture encoding ~~method~~ apparatus according to Claim 7, wherein in estimation of the reference frequency, the reference frequency is estimated as to a part of the reference frame.

13.   (Currently Amended) A ~~moving picture encoding apparatus capable of using a reference frame number in multi-frame motion prediction and variable-length code reference frame information corresponding to the number, said apparatus comprising:~~

~~reference frame identification information calculation means for calculating a reference frequency of the reference frame and for, with the reference frequency, acquiring reference frame identification information so that a ratio of a reference frame index code occupying a bit stream is reduced; and~~

~~multiplexing means for multiplexing the reference frame identification information together with encoded moving picture data~~ program causing a computer to execute processes, said computer executing moving picture encoding capable of using a reference frame number in multi-frame motion prediction and variable-length code reference frame information corresponding to the number, said processes comprising:

a process for acquiring a reference frequency of the reference frame;

a process for, with the reference frequency, acquiring reference frame identification information so that a ratio of a reference frame index code occupying a bit stream is reduced; and

a process for multiplexing the reference frame identification information together with encoded moving picture data,

wherein the process for acquiring the reference frequency includes a process for calculating a frame similarity and for then estimating the reference frequency of the reference frequency.

14.   (Currently Amended) The ~~moving picture encoding apparatus~~ program according to Claim 13, wherein the ~~reference frame identification information calculation~~

~~means comprises means for, based on the reference frequency, assigning a relatively shorter code to the reference frame index code of a reference frame referred with relatively high frequency and assigning a relatively longer code to the reference frame index code of a reference frame referred with relatively low frequency, thereby acquiring the reference frame identification information~~ process for acquiring the reference frame identification information comprises a process for assigning, based on the reference frequency, a relatively shorter code to the reference frame index code of a reference frame referred with relatively high frequency and assigning a relatively longer code to the reference frame index code of a reference frame referred with relatively low frequency, thereby acquiring the reference frame identification information.

15.   (Currently Amended) The ~~moving picture encoding apparatus~~ program according to Claim 13 or 14, wherein ~~in calculation of the reference frequency, a reference frame for each block is acquired from a prediction~~ the process for estimating the reference frequency comprises: a process for extracting an orthogonal transformation coefficient from a picture frame to calculate the frame similarity; and a process for estimating the reference frequency from the frame similarity.

16.   (Currently Amended) The ~~moving picture encoding apparatus~~ program according to Claim 13 further causing the computer to execute:
        a process for detecting a reference frame of which the frame similarity is excessively low; and
        a process for regarding the detected reference frame as a non-reference frame ~~wherein in calculation of the reference frequency, the reference frequency is calculated as to all of the reference frame~~.

17.   (Currently Amended) The ~~moving picture encoding apparatus~~ program according to Claim 13, wherein, in ~~calculation of the reference frequency, the reference frequency is calculated as to a part of the reference frame~~ the process for estimating the reference frequency of the reference frame, the reference frequency is estimated as to all of the reference frame.

18.   (Currently Amended) ~~A moving picture encoding apparatus capable of using a reference frame number in multi-frame motion prediction and variable-length code reference frame information corresponding to the number, said apparatus comprising:~~

~~reference frame identification information calculation means for calculating a frame similarity to estimate a reference frequency of the reference frame and for acquiring, with the reference frequency, reference frame identification information so that a ratio of a reference frame index code occupying a bit stream is reduced; and~~

~~multiplexing means for multiplexing the reference frame identification information together with encoded moving picture data~~ The program according to Claim 13, wherein, in the process for estimating the reference frequency of the reference frame, the reference frequency is estimated as to a part of the reference frame.

19-25   Canceled.